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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,947	10/21/2003	Masayuki Fujimoto	038849.52804US	3296

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EXAMINER

PHAM, HAI CHI

ART UNIT PAPER NUMBER

2861

DATE MAILED: 12/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/688,947

Applicant(s)

FUJIMOTO, MASAYUKI

Examiner

Hai C. Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,7,8 and 11-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,8 and 11-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Drawings*

1. The drawings were received on 09/26/06. These drawings are accepted.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

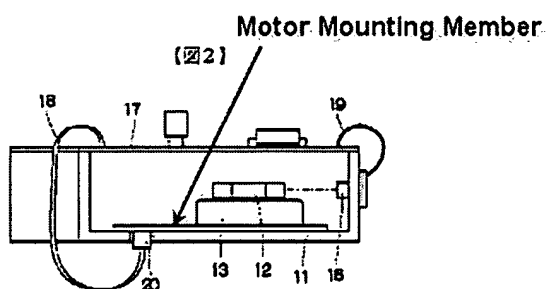
3. Claims 2, 4, 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hori (JP 8-211317).

Hori discloses a scanning optical device comprising a laser scanning unit, wherein the laser scanning unit comprises a frame body (casing 11), a semiconductor laser (semiconductor laser light source 16) for emitting a laser beam, the semiconductor laser being installed inside the frame body (Fig. 2), a polygon mirror (12) for causing the laser beam to scan on a photosensitive drum (photoconductor, not illustrated), a motor (polygon motor 13) for rotating the polygon mirror, the motor being placed inside the frame body and having the polygon mirror mounted (Fig. 2), and a circuit board (circuit board 17) for packaging two circuits of a semiconductor laser drive circuit for controlling the driving of the semiconductor laser and a motor drive circuit for controlling the driving of the motor (the main circuit board 17 contains the IC device for controlling both the

Art Unit: 2861

semiconductor laser light source 16 and the polygon motor 13) (see Abstract), the circuit board being provided outside the frame body in an area a predetermined distance apart from an area where the motor is placed in the frame body (the circuit board with the IC drive is facing to the outside of the casing 11 so as to be in contact with the external air, the circuit board being located opposite to the polygon mirror 13 with respect to the frame of the casing) (Figs. 1-3). Hori further teaches a first flexible cable (flexible cable 18) for connecting the circuit board (17) provided outside the frame body (11) and the motor (13) placed inside the frame body, and a second flexible cable (flexible cable 19) for connecting the circuit board provided outside the frame body and the semiconductor laser (16) installed inside the frame body (11) (Figs. 1-2).

With regard to claim 4, Hori further teaches a motor mounting member (see Fig. 2 as displayed below) only having a motor mounting function and disposed between the motor and the frame body, wherein the motor is mounted inside the frame body via the motor mounting member.



With regard to claim 11, Hori also teaches the frame body (casing 11) including a hole (notch in the casing 11) through which the first flexible cable (flexible cable 18) is disposed for connecting the circuit board and the motor (the flexible cable 18 connects the circuit board 17 to the polygon motor via the connector 20 located in the notch made in the casing 11) (see Fig. 2) (English translation, paragraph [0012]).

With regard to claim 12, Hori teaches each of the first and second flexible cables (18 and 19) comprising a plurality of wires (Fig. 1).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hori in view of Yoshino (JP 7-178957).

Hori discloses all the basic limitations of the claimed invention except for the circuit board being made of paper phenol.

Yoshino discloses a laser printer, which includes a simple low cost electric circuit substrate (14) made of paper phenol on which a circuit pattern (32) is formed including a drive IC for driving a semiconductor laser.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use paper phenol for the circuit board in the device of

Hori as taught by Yoshino. The motivation for doing so would have been to provide a low cost, small size and simple circuit board structure, which further prevents any short-circuit event as suggested by Yoshino at paragraph [0025].

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hori in view of Herloski et al. (U.S. 4,355,859).

Hori discloses all the basic limitations of the claimed invention except for the laser being angularly adjustable.

Herloski et al. discloses a raster scanning apparatus having a laser for generating a scanning beam, the apparatus is wherein the laser is provided with an assembly for angularly adjusting the position of the laser so as to align the laser beam with the optical axis of the scanner (col. 1, line 62 to col. 2, line 35).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the adjustable mechanism for adjusting the position of the laser in the device of Hori as taught by Herloski et al. The motivation for doing so would have been to allow the laser printer to align the laser beam with the optical axis of the optical scanner as suggested by Herloski et al.

7. Claims 1, 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hori in view of Miyamoto et al. (US 5,900,961), Yoshino and Herloski et al.

Hori discloses all the basic limitations of the claimed invention except for the synchronizing signal detecting circuit having a photodiode for detecting a scan start

position of the laser beam and the first circuit board on which the synchronizing signal detecting circuit is packaged.

Miyamoto et al. discloses a scanning optical device comprising a laser scanning unit, wherein the laser scanning unit comprises a frame body (optical casing 1), a semiconductor laser (laser unit 202) for emitting a laser beam, the semiconductor laser being installed inside the frame body, a polygon mirror (203) for causing the laser beam to scan on a photosensitive drum (23), a motor (203) for rotating the polygon mirror, the motor being placed inside the frame body and having the polygon mirror mounted (Fig. 7B), and a circuit board (Fig. 7A) for packaging two circuits of a semiconductor laser drive circuit for controlling the driving of the semiconductor laser and a motor drive circuit for controlling the driving of the motor (the IC device 208 being an integrated circuit device, which has dual function of controlling the laser unit 202 and the polygon motor 203) (col. 4, lines 50-56), the circuit board being provided outside the frame body in an area a predetermined distance apart from an area where the motor is placed in the frame body (the circuit board being positioned outside the optical casing 1 separate from the laser unit and the motor by an opening of the cover 212 such that "the IC device 208 is in contact with the external air") (col. 4, lines 57-67). Miyamoto et al. further teaches the scan start position detector comprising a photodiode (the horizontal synchronization signal detecting unit 207 is the laser beam detecting circuit that includes a photodiode) (col. 4, lines 41-45).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Hori with the horizontal

Art Unit: 2861

synchronization signal detecting unit as taught by Miyamoto et al. The motivation for doing so would have been to vertically align the scan lines during the image formation as it is well known in the art.

Hori in view of Miyamoto et al. fails to teach the circuit board being made of paper phenol.

Yoshino discloses a laser printer, which includes a simple low cost electric circuit substrate (14) made of paper phenol on which a circuit pattern (32) is formed including a drive IC for driving a semiconductor laser.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use paper phenol for the circuit board in the device of Hori as taught by Yoshino. The motivation for doing so would have been to provide a low cost, small size and simple circuit board structure, which further prevents any short-circuit event as suggested by Yoshino at paragraph [0025].

Hori also fails to teach the laser being angularly adjustable.

Herloski et al. discloses a raster scanning apparatus having a laser for generating a scanning beam, the apparatus is wherein the laser is provided with an assembly for angularly adjusting the position of the laser so as to align the laser beam with the optical axis of the scanner (col. 1, line 62 to col. 2, line 35).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the adjustable mechanism for adjusting the position of the laser in the device of Hori as taught by Herloski et al. The motivation for



Art Unit: 2861

doing so would have been to allow the laser printer to align the laser beam with the optical axis of the optical scanner as suggested by Herloski et al.

8. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hori in view of Miyamoto et al.

Hori discloses all the basic limitations of the claimed invention except for the scan start position detector for detecting a scan start position of the laser beam and detector being a photodiode.

Miyamoto et al. discloses a scanning optical device a scan start position detector comprising a photodiode (the horizontal synchronization signal detecting unit 207 is the laser beam detecting circuit that includes a photodiode) (col. 4, lines 41-45).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Hori with the horizontal synchronization signal detecting unit as taught by Miyamoto et al. The motivation for doing so would have been to vertically align the scan lines during the image formation as it is well known in the art.

9. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hori in view of Yoshino, as applied to claim 3 above, and further in view of Miyamoto et al.

Hori in view of Yoshino discloses all the basic limitations of the claimed invention except for the scan start position detector for detecting a scan start position of the laser beam and detector being a photodiode.

Miyamoto et al. discloses a scanning optical device a scan start position detector comprising a photodiode (the horizontal synchronization signal detecting unit 207 is the laser beam detecting circuit that includes a photodiode) (col. 4, lines 41-45).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the device of Hori with the horizontal synchronization signal detecting unit as taught by Miyamoto et al. The motivation for doing so would have been to vertically align the scan lines during the image formation as it is well known in the art.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-5, 7-8 and 11-16 have been considered but are moot in view of the new grounds of rejection.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone

Art Unit: 2861

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



HAI PHAM  
PRIMARY EXAMINER

December 2, 2006

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FIG. 4

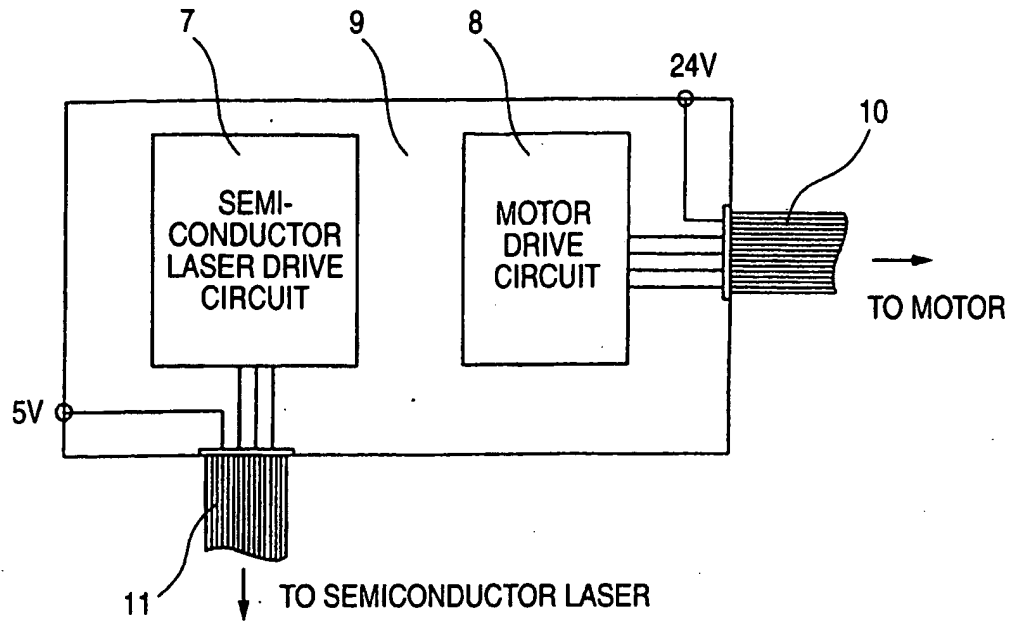
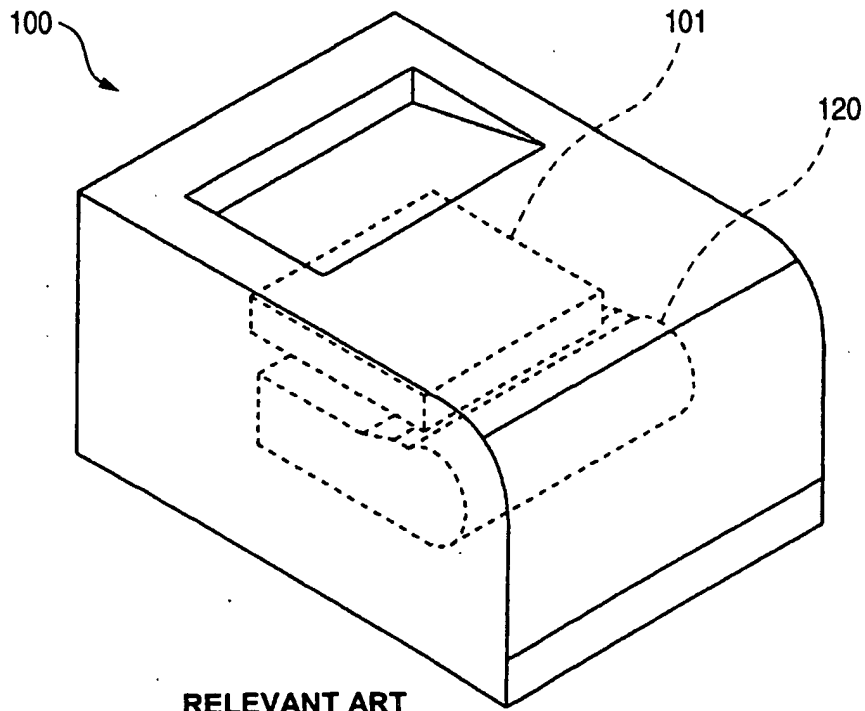


FIG. 5

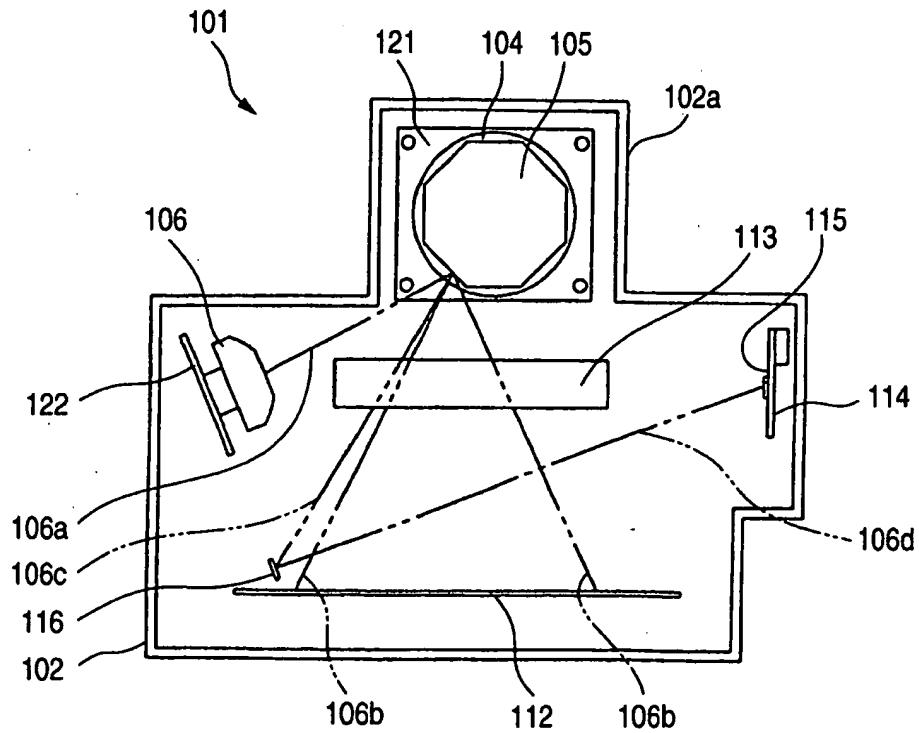


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Dec  
12/2/06

RELEVANT ART

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FIG. 6



RELEVANT ART

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